Claims

1. Electronic distance measuring apparatus for surveying, e.g. for measuring the distance from the apparatus to an object comprising:

a) an objective lens (101), defining an optical axis (OA),

b) at least two sources (111,112) of structured light for transmitting beams ($\lambda_1$,$\lambda_2$) of separate wavelengths towards said object, said beams on reflection from said object received by the objective lens (101),

(c) at least two receivers (141,142) arranged outside a beam path (109) as defined by the objective lens (101), and adapted to receive said received beams ($\lambda_1$,$\lambda_2$) of structured light, whereat optical means comprising at least two dichroic surfaces (121a, 122a) are each arranged at a tilt angle ($\alpha_1$, $\alpha_2$) with respect to said axis (OA), said optical axis (OA) passing through said surfaces, at least one of said dichroic surfaces arranged on a plate (121, 122), said at least two dichroic surfaces (121a, 122a) adapted to reflect at least one of said received structured light beams($\lambda_1$,$\lambda_2$), respectively, towards said receivers (141, 142).

2. Electronic distance measuring apparatus according to claim 1 such that said dichroic surfaces (121a, 122a), each are arranged on separate plates (121, 122).

3. Electronic distance measuring apparatus according to claim 1 wherein one of said dichroic surfaces is arranged on a plate (621) and the other of said dichroic surface (622) is arranged in a prism (625).

4. Electronic distance measuring apparatus according to claim 1 wherein said at least two sources (111,112) of structured light for transmitting said beams ($\lambda_1$,$\lambda_2$) are adapted to transmit said light towards a light redirect member (102) arranged adjacent to the objective lens (101),

5. Electronic distance measuring apparatus according to claim 4 wherein said light redirect member is a redirecting prism (102).

6. Electronic distance measuring apparatus according to claim 5 wherein said redirecting prism (102) is attached to the objective lens (101b).

7. Electronic distance measuring apparatus according to claims 2 or 3 wherein at least one mirror (131, 132) is arranged adjacent to said optical axis (AO) for redirecting at least one of the received structured light beams ($\lambda_1$,$\lambda_2$) reflected in said dichroic surfaces (121a, 122a) towards said receiver s (141,142).

8. Electronic distance measuring apparatus according to claim 2 wherein said dichroic plates (221,222) are wedge-formed, to provide correction for aberration errors.

9. Electronic distance measuring apparatus according to claim 2 wherein a compensating plate (307) is inserted between the focussing lens (304) and adjacent dichroic plate (322), whereat the tilt direction of said compensating plate (307) and said dichroic plate (322), said tilt direction defined by an axis in the plane of the plate around which the plate is rotated with respect to said optical axis, are chosen such that the tilt directions of the two plates are arranged such as to be at an angle of approximately 90°with respect to each other.

10. Electronic distance measuring apparatus according to claim 2 wherein two dichroic plates (521, 522) are arranged such that the tilt direction of said dichroic plates, said tilt direction defined by an axis in the plane of the plate around which the respective plate is rotated with respect to said optical axis, are chosen such that the tilt directions of the two plates are arranged to be at an angle of approximately 90°with respect to each other.